Bioengineering strategies to accelerate stem cell therapeutics.

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Funding Grants: Injectable Hydrogels for the Delivery, Maturation, and Engraftment of Clinically Relevant Numbers of Human Induced Pluripotent Stem Cell-Derived Neural Progenitors to the Central Nervous System

Public Summary:
Although only a few stem cell-based therapies are currently available to patients, stem cells hold tremendous regenerative potential, and several exciting clinical applications are on the horizon. Biomaterials with tuneable mechanical and biochemical properties can preserve stem cell function in culture, enhance survival of transplanted cells and guide tissue regeneration. Rapid progress with three-dimensional hydrogel culture platforms provides the opportunity to grow patient-specific organoids, and has led to the discovery of drugs that stimulate endogenous tissue-specific stem cells and enabled screens for drugs to treat disease. Therefore, bioengineering technologies are poised to overcome current bottlenecks and revolutionize the field of regenerative medicine.

Scientific Abstract:
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